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ALCOHOL AND OTHER DRUG USE AMONG ONTARIO STUDENTS

A Continuing Study

by Reginald G. Smart, Michael S. Goodstadt, Margaret A. Sheppard, and Carolyn B. Liban



ADDICTION RESEARCH FOUNDATION

1980

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AMONG ONTARIO STUDENTS**

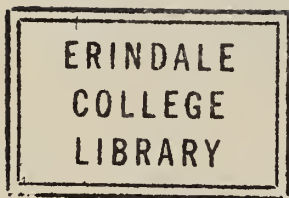
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Since 1968 the Addiction Research Foundation has been studying the frequency of alcohol and other drug use among students in Ontario. These studies are helpful in understanding (1) the nature and extent of alcohol and other drug use and problems associated with them, (2) the social and demographic correlates involved, and (3) trends in both drug and alcohol use.

Studies were originally conducted every two years (1968-1974) in Toronto schools (Smart and Fejer, 1975). However, in 1977 it was decided to begin a new series of studies throughout Ontario in order to broaden the possible generalizations and give information about drug use in all areas of the province (Smart and Goodstadt, 1977). This province-wide study differed from the Toronto series in that (1) students throughout Ontario were included, and (2) questions regarding drug use referred to the previous year rather than to the previous six months. The change in questioning was made to render the study more comparable to others being conducted in the USA (e.g. Johnston et al., 1977 and Blackford, 1977) and throughout the world under the auspices of the World Health Organization. Because of these differences, it is recommended that the results of the Ontario studies not be directly compared with the earlier Toronto results.

The present 1979 study differed from the one in 1977 in several important respects: (1) Grade 5 students were not sampled, only those in Grades 7, 9, 11, and 13; (2) a 13-item alcohol problem scale was added; (3) more questions on exposure to drinking and driving were added; and (4) a test-retest segment was added wherein students in eight classes completed the questionnaire on two occasions approximately two months apart.

The main purposes of the 1979 study were to determine: (1) the frequency of use of various drugs by students in Grades 7 to 13; (2) the availability of alcohol and various other drugs; (3) the problems students had in relation to drinking and driving; (4) the extent and nature of drinking problems among students; (5) the extent of exposure to alcohol and other drug education programs in the schools, and student attitudes towards these; (6) changes occurring in response to questions asked in 1977 and 1979; and (7) the effects of the increase in the drinking age in 1979. This report is a preliminary one which presents only the basic findings about the frequency of drug use and how these relate to some demographic characteristics. Later reports will deal in greater depth with other aspects of the data.

TABLE 1

Region, Definition, % of Total Sample

Region	Definition	% of Total Sample		
		Desired	Actual	Actual
		1979	1979	1977
Northern Region	Districts of Cochrane, Nipissing, Parry Sound, Timiskaming, Muskoka, Algoma, Manitoulin, Sudbury, Kenora, Rainy River, Thunder Bay.	11.9	15.2	13.1
Western Ontario	Counties of Elgin, Essex, Huron, Kent, Lambton, Middlesex.	11.9	12.8	10.6
Midwestern Ontario Region	Counties of Brant, Bruce, Grey, Oxford, Perth, Waterloo, Wellington.	9.2	11.0	5.9
Niagara Region	Counties of Haldimand, Norfolk, Wentworth, and the Regional Municipality of Niagara	10.5	12.0	12.4
Central Ontario Region	Counties of Dufferin, Haliburton, Halton, Ontario, Peel, Simcoe, Victoria, York.	39.3	35.9	45.1
Eastern Ontario Region	Counties of Frontenac, Hastings, Leeds and Grenville, Lennox and Addington, Northumberland and Durham, Peterborough and Prince Edward.	6.8	6.4	6.1
Ottawa Valley	Counties of Lanark, Prescott and Russell, Renfrew, Stormount, Dundas and Glengarry, and the Regional Municipality of Ottawa-Carleton.	10.3	6.8	6.9

METHOD

Sample Selection

The sampling method in 1979 was essentially the same as that used in 1977. The sample for this survey consisted of students in Grades 7, 9, 11, and 13 from 89 Ontario schools.* It was derived with three basic considerations in mind: (1) that approximately 5,000 students should complete the questionnaire; (2) that the sample be representative of Ontario students at these grade levels; and (3) that the sample involve approximately 20 school boards. The latest statistics from the Ministry of Education were used to determine the sample size required for each grade. Grade 13 was deliberately over-represented so as to provide sufficient numbers for cross-tabulation.

At the same time of the 1977 survey, the Ministry of Education divided Ontario into nine administrative or geographical regions and although there are now six, the 1977 division was kept for the 1979 study as well. For this study, the three northern regions were combined, creating seven regions for sampling purposes. The sample selected from each region and for each grade in that region was made proportional to the region's contribution to the total Ontario student enrollment.

The number of school boards required from each region was also proportional to the region's contribution to the total Ontario student enrollment in Grades 7, 9, 11, and 13 in that the regions with more students contributed more boards to the study in relation to their size. To be eligible for inclusion in the sample, a board's enrollment in the grades

* The study was carried out by Ian Sone and Associates Ltd. social research consultants, under contract with ARF. They were responsible for the sample design, administration, data collection, and initial data processing.

under study had to be sufficient to meet the sample size requirements. Only those boards operating public secondary schools, public elementary schools, or separate schools (Grades 7 and 9 only for separate schools) were eligible for inclusion in the sample. The eligible boards from each region were determined and, by a random process, the required number of boards were selected. In each region, an alternate board was also selected.

A letter was sent from the president of the Addiction Research Foundation to the director of education of each of the 24 boards of education selected in 1977, requesting cooperation in the survey. Five boards decided not to participate. Two alternate boards were contacted and agreed to take part in the survey, and one board which had initially given approval for the survey later withdrew. In total, the schools from 20 boards of education across the province participated in the 1977 survey. The same boards were approached again in 1979 and all participated.

In order to select the schools from each board, the consultants produced a sampling list of all high schools which had a Grade 9 enrollment of at least 25 students, and gave schools which had a larger enrollment a proportionately greater chance of being selected from this list. Random sample tables were then used to select the schools. Grades 11 and 13 samples were chosen from the same schools; based on the size of the Grade 9 sample selected.

Elementary schools which provided the Grade 7 sample were randomly selected from those elementary schools located near the selected high schools. In most cases, there were "feeder" schools for the high schools. The sizes of the Grade 7 sample from elementary schools were based on the size of the Grade 9 sample from the nearby high school.

In 1977 some 104 schools participated, but in 1979 those schools supplying only Grade 5 students to the study were removed. The principals of 94 schools were contacted. Eight schools decided not to participate, and three alternate schools agreed to substitute. Arrangements were made to administer the survey to a total of 89 schools. The field staff was unable to arrive at two schools due to weather conditions. The questionnaire

was therefore administered at 87 schools, during the five weeks ending February 16, 1979.

The selection of students who would complete the questionnaire at each school was made in consultation with the principal or his designate. In almost all cases whole classes of students were selected at random, and in a few cases students were selected from among all the students in that grade. The basic concern in the selection of classes was that, as far as possible, the students be representative of the total student population in a grade. In a few schools which had relatively small enrollments, all the students in a grade were asked to participate.

The decision whether parental consent was required for a student to take part in the study was made either by the school board or by the individual school. Of the 87 schools which participated, 51 required parental consent and 38 did not. In most schools, letters were sent from the principal to the parents of the selected students, explaining the survey and requesting cooperation. These letters were distributed a few weeks in advance of the planned administration date, and had to be signed and returned to the school. In some schools, students 18 and older were allowed to sign the letters. Approximately 78% of the students selected actually participated in the survey. The total number of students who completed the questionnaire was 4,794. From information provided, 1,274 were in Grade 7, 1,554 were in Grade 9, 1,111 were in Grade 11, and 840 were in Grade 13.

Potential Sources of Sampling Bias

In 51 of the 87 schools involved in the study, parental consent was required as a condition of student participation. Overall, 78% of the students contacted did participate. It might be suggested that participating and non-participating students differ appreciably in their use of drugs. Schools which required parental consent for participation were compared with schools which did not, in the proportion of students who reported the use of various drugs. There were no significant differences in the percentage of users of tobacco or marijuana but there was a significant difference in the percentage of alcohol users, with schools not requiring parental consent for participation having a slightly

higher percentage of users. In 1977, schools not requiring parental consent had the same proportions of alcohol users but fewer marijuana users.

The selection of classes within a particular school could have introduced a bias in the sample. Although the selection of classes was attempted on a random basis, principals or their designates had to be consulted and the final selection of classes was under the control of the school. There may have been a tendency to try to select classes whose students were more or less likely to report illicit drug use.

The weather conditions prevailing at the time of the study created few problems, unlike the situation in 1977. Although no schools were closed because of weather on the days the survey was to be administered, two schools could not be tested because the field staff were unable to reach the schools.

Procedures

The questionnaire was administered to the equivalent of approximately 195 classes in 87 schools by nine interviewers. In a number of schools, classes were combined to facilitate scheduling and data collection. Grade 7 students recorded their answers on the questionnaire booklet, and these were later coded on a mark sense sheet. Grade 9, 11, and 13 students recorded their answers directly on a mark sense sheet. All students were instructed not to sign their names or to put any identifying marks on their completed answer sheets.

Two high schools participated in a test-retest study: three classes were selected from each, one at each grade level, and two Grade 7 classes were selected from a public school. The test-retest interval was two months. The questionnaires used in the test-retest schools bore a two-part label containing a number and the student's name. Students were instructed to tear off the name and to fill out the responses on the questionnaire booklet, which were later transferred to a mark sense sheet. A total of 152 students were successfully tested on both occasions.

RESULTS

Reliability of the Results

The reliability of the various questions depended upon the type of question involved. Reliability will be the topic of a longer, separate report, however, some information is included in Table 2. It can be seen that none of the items has perfect reliability—even sex. However, age, sex, grade, cultural background, and grade average have high reliabilities with 83.6% to 98% of students giving exactly the same answer on the two testings. The consistency for parents' occupation is slightly lower but better for the mother's occupation than for the father's.

The consistency of individuals classifying themselves as either users or non-users of various drugs is very high--above 90% for all drugs except tobacco (85.5% consistent), alcohol (86.2%), cannabis (84.2%), and prescribed barbiturates (88.2%). The consistency for most drugs is almost as high when the frequency of reported use is examined. However, for the commonly used drugs--tobacco, alcohol, and cannabis--it drops somewhat. Some of this discrepancy may be due to inconsistent use of these drugs over the test-retest period (two months). It is not necessarily the case that the questions are incorrectly answered or that students are being deceptive but may accurately reflect changes in drug use.

TABLE 2

Questionnaire Item Consistency Across Testings

Item Content	Percent of Students Responding Identically Across Testings (N=152)	
	All Response Categories	Condensed Response Categories
<i>Demographic Characteristics</i>		
Age	91.4	-
Sex	94.7	-
Grade	98.0	-
Father's Occupation	71.1	-
Mother's Occupation	78.3	-
Cultural Background	84.2	-
Grade Average	83.6	-
<i>Drug and Alcohol Use</i>		
		(Non-User/User/NA)
Tobacco	69.1	85.5
Alcohol	55.3	86.2
Cannabis	74.3	84.2
Glue	96.1	96.1
Other Solvents	90.1	90.1
Barbiturates ¹	86.8	88.2
Barbiturates ²	94.7	97.4
Heroin	96.1	96.7
Speed	96.7	97.4
Stimulants ¹	93.4	94.1
Stimulants ²	91.4	93.4
Tranquillizers ¹	90.1	90.8
Tranquillizers ²	93.4	95.4
LSD	93.4	96.7
Other Hallucinogens	94.1	95.4
Cocaine	96.1	96.7

¹ prescription² non-prescription

Similarity of the 1977 and 1979 Samples*

Attempts were made to keep the sampling methods as similar as possible for the 1977 and 1979 surveys. In general, the samples are roughly similar but, because of the large sizes of the samples, numerically small differences can be statistically significant. Table 3 shows the relevant comparisons of the two samples. It can be seen that there were more males in the 1979 survey (51% compared to 47.5%), slightly fewer young people (25.9% compared to 28.0% aged 13 and under), and slightly more older students (16.2% vs. 13.9% aged 18 and older). The grade differences of course reflect the age differences with more Grade 11 and 13 students and somewhat fewer Grade 7 and 9 students in 1979 than 1977. The grade averages were similar in the two years. The proportions of students surveyed in the Northern, Western, and Midwestern regions were higher in 1979 than in 1977. This occurred largely because the 1979 survey, in contrast to the 1977 survey, was not hampered by bad weather. The regions showing increases in 1979 were most affected by the bad weather of 1977.

Only the sex and regional distributions were significantly different between the 1979 and 1977 surveys. However, when the 1979 survey data was compared with Ontario secondary school enrollment statistics (for September 1978) provided by the Ministry of Education, the sex ratios were found to be very similar: 51.2% males and 48.8% females in the 1979 survey compared with 51.5% males and 48.5% females in the Ontario student population.

Because some types of drug use are related to age and sex, overall results for individual drugs could be somewhat affected by the changes in sample characteristics. However, analyses are made individually for each drug by age and sex.

Alcohol and Other Drug Use in the Total Sample: 1979 and 1977

Table 4 shows the frequency of students reporting the use of alcohol and the 15 types of drugs in the previous year.** It can be seen that alcohol, tobacco, and cannabis were the drugs most commonly used by students in 1979 (76.9%, 34.7%, and 31.7%, respectively). All other drugs were used by much smaller proportions of students--e.g. pre-

* Basic frequencies and some cross-tabulations are reported here. Multivariate analyses will follow in later reports.

** Alcohol use was defined as consuming alcohol at least once in the previous year including at special events such as Christmas or weddings, however, having only a sip of alcohol to see what it was like was considered non-use. Similarly, trying one cigarette in the previous year to see what it was like was defined as non-use of tobacco. Use of each of the remaining drugs was defined as use of the drug at least one time in the previous year.

TABLE 3

Characteristics of the 1977 and 1979 Samples

Demographic Characteristic	1977		1979	
	(N)	%	(N)	%
<i>*Sex</i>				
Male	(2218)	47.5	(2429)	51.0
Female	(2454)	52.2	(2337)	49.0
Male : Female Ratio	1:1.11		1:0.96	
<i>Age</i>				
13 years and under	(1308)	28.0	(1237)	25.9
14-15 years	(1547)	33.1	(1532)	32.0
16-17 years	(1169)	25.0	(1240)	25.9
18 years and over	(651)	13.9	(775)	16.2
<i>Grade</i>				
Grade 7	(1291)	27.6	(1274)	26.7
Grade 9	(1582)	33.8	(1554)	32.5
Grade 11	(1066)	22.8	(1111)	23.2
Grade 13	(735)	15.7	(840)	17.6
<i>Grade Average</i>				
80-100	(858)	18.4	(926)	19.4
67-79	(2168)	46.4	(2193)	45.9
60-66	(1282)	27.4	(1312)	27.5
Below 60	(366)	7.8	(345)	7.2
<i>*Region</i>				
Northern	(619)	13.2	(727)	15.2
Western	(470)	10.0	(613)	12.8
Midwestern	(263)	5.6	(528)	11.0
Niagara	(572)	12.2	(573)	12.0
Central	(2106)	44.9	(1719)	35.9
Eastern	(318)	6.8	(309)	6.4
Ottawa Valley	(339)	7.2	(325)	6.8

* significant difference ($p < .001$) between years

TABLE 4

***Alcohol and Drug Use in the Total
Sample of Students Grades 7 to 13***

Drug	Percent Using Drug At Least Once in Past 12 Months	
	1977	1979
*Tobacco	30.4 ³	34.7
Alcohol	76.3 ³	76.9
*Cannabis	25.1	31.7
Glue	3.9	4.3
Other Solvents	6.6	6.2
Barbiturates ¹	14.3	12.8
Barbiturates ²	6.0	6.8
Heroin	1.9	2.3
Speed	2.7	3.6
Stimulants ¹	6.6	5.9
*Stimulants ²	7.2	10.6
Tranquillizers ¹	8.6	6.9
Tranquillizers ²	4.9	5.9
*LSD	6.2	8.6
Other Hallucinogens	4.4	5.3
Cocaine	3.8	5.1

*significant difference ($p < .001$) between years

¹prescription

²non-prescription

³percent of users differs from that reported in the 1977 report of alcohol and drug use among Ontario students (Smart and Goodstadt, 1977) due to a re-definition of "user"

scription barbiturates, 12.8%; non-prescription stimulants, 10.6%; and LSD, 8.6%. In general, illicit drugs other than cannabis were used by relatively few students--less than 10%, except for stimulants. The relative importance of the most frequently used drugs has not changed since 1977.

The use of tobacco, cannabis, non-prescription stimulants, and LSD increased significantly ($p < .001$)* between 1977 and 1979. The largest percentage increases were in non-prescription stimulants (47.2%), LSD (38.7%), and cannabis (26.3%). The use of all other drugs was approximately the same as in 1977. The phi coefficient** was calculated for each drug. The coefficients were notably low, all falling below 0.10, thus indicating that the differences between years were of relatively small size.

Alcohol and Other Drug Use in Males and Females

In 1979, there were significant differences among males and females in the use of various drugs (see Table 5). The strength of these relationships, as measured by the phi coefficient, were relatively weak, falling at the .10 level or below. There were more male than female users of alcohol, cannabis, glue, non-prescription barbiturates, speed, non-prescription stimulants, LSD, other hallucinogens, and cocaine. Some of these differences, but not those for glue, non-prescription barbiturates, non-prescription stimulants, and LSD, also appeared in 1977. More females than males reported the use of tobacco, the only drug for which that occurred. There were no sex differences in the use of other solvents, prescription barbiturates, heroin, prescription stimulants, and tranquillizers (both types, i.e. prescription and non-prescription).

The use of cannabis increased among both male and female students from 1977 and 1979. Tobacco use increased only among female students. Non-prescription stimulant use and LSD use increased only among males. Phi coefficients for all of the above differences were low (i.e. below .10).

Alcohol and Other Drug Use in Various Age Groups

The use of alcohol and other drugs in 1979 was often related to age (see Table 6). The use of all drugs except heroin, speed, prescription tranquillizers, and cocaine was related

* A significance level of .001 was chosen for this report because with large samples very small numerical differences may achieve statistical significance at lower levels, suggesting a large number of "differences" which would not be replicated in later studies. The more conservative .001 should avoid many of these problems.

** The phi statistic is a measure of the strength of relationship for a 2 x 2 table, taking on the value of 0 when no relationship exists, and the value of +1 when the variables are perfectly related (Nie et al., 1975).

TABLE 5

Drug Use by Sex
(Percent using drugs at least
once in past 12 months)

Type of Drug	Year	Sex		Total (N)
		Male	Female	
Tobacco	1977	28.5	b 32.1	(4645)
	a 1979	32.1	37.5	(4722)
Alcohol	a 1977	78.5	74.3	(4653)
	a 1979	79.0	74.9	(4724)
Cannabis	a 1977	b 29.4	b 21.1	(4655)
	a 1979	36.4	26.8	(4741)
Glue	1977	4.5	3.2	(4647)
	a 1979	5.8	2.7	(4725)
Other Solvents	1977	7.0	6.2	(4645)
	1979	7.1	5.3	(4722)
Barbiturates ¹	1977	14.3	14.1	(4641)
	1979	12.7	13.0	(4734)
Barbiturates ²	1977	6.6	5.4	(4656)
	a 1979	8.2	5.3	(4748)
Heroin	1977	2.0	1.9	(4640)
	1979	2.9	1.5	(4718)
Speed	a 1977	3.7	1.8	(4651)
	a 1979	4.5	2.5	(4751)
Stimulants ¹	1977	6.9	6.2	(4640)
	1979	6.8	4.9	(4725)
Stimulants ²	1977	b 7.7	6.7	(4649)
	a 1979	12.2	8.9	(4743)
Tranquillizers ¹	1977	7.7	9.4	(4647)
	1979	6.7	7.0	(4736)
Tranquilizers ²	1977	5.2	4.7	(4646)
	1979	6.2	5.5	(4745)
LSD	1977	b 7.3	5.0	(4652)
	a 1979	10.4	6.8	(4743)

TABLE 5 continued

Drug Use by Sex**(Percent using drugs at least
once in past 12 months)**

Type of Drug	Year	Sex		Total (N)
		Male	Female	
Other Hallucinogens	a 1977	6.0	2.9	(4661)
	a 1979	6.4	4.2	(4758)
Cocaine	a 1977	5.0	2.6	(4650)
	a 1979	6.6	3.4	(4754)

a significant difference ($p < .001$) between sexesb significant difference ($p < .001$) between years¹prescription²non-prescription

TABLE 6

Drug Use by Age
(Percent using drugs at least
once in past 12 months)

Type of Drug	Year	Age (in years)				Total (N)
		13 & Under	14-15	16-17	18 & Over	
Tobacco	a 1977	b 13.5	32.4	42.5	37.8	(4648)
	a 1979	b 18.8	36.8	46.7	36.4	(4739)
Alcohol	a 1977	57.5	75.3	88.3	94.8	(4655)
	a 1979	56.8	75.3	89.6	91.5	(4739)
Cannabis	a 1977	b 5.7	b 21.7	b 41.4	42.5	(4659)
	a 1979	b 9.6	b 28.1	b 49.5	45.1	(4758)
Glue	a 1977	6.1	4.1	2.1	2.0	(4650)
	a 1979	7.1	5.0	2.3	1.9	(4742)
Other Solvents	a 1977	12.0	6.8	2.8	2.0	(4648)
	a 1979	9.3	7.9	3.6	2.3	(4737)
Barbiturates ¹	a 1977	7.2	14.1	19.9	18.3	(4642)
	a 1979	8.8	13.2	15.3	14.1	(4752)
Barbiturates ²	a 1977	2.5	6.7	8.7	6.6	(4659)
	a 1979	2.6	6.9	11.3	5.4	(4762)
Heroin	1977	1.6	2.5	1.6	2.0	(4642)
	1979	1.7	2.8	2.3	1.9	(4735)
Speed	1977	2.4	2.9	2.7	3.1	(4653)
	1979	2.0	3.7	4.4	4.3	(4768)
Stimulants ¹	1977	5.6	6.0	9.0	5.5	(4642)
	a 1979	3.9	5.9	7.8	5.7	(4741)
Stimulants ²	a 1977	3.4	8.9	b 9.5	6.6	(4650)
	a 1979	3.9	10.1	b 17.9	10.1	(4760)
Tranquillizers ¹	1977	6.1	b 9.1	10.1	9.7	(4650)
	1979	5.4	b 5.7	8.5	8.5	(4753)
Tanquillizers ²	a 1977	1.9	5.6	6.8	6.0	(4650)
	a 1979	2.4	6.0	8.6	6.6	(4761)
LSD	a 1977	2.2	5.6	9.9	8.4	(4655)
	a 1979	3.6	8.3	13.9	8.4	(4761)

TABLE 6 continued

Drug Use by Age(Percent using drugs at least
once in past 12 months)

Type of Drug	Year	Age (in years)				Total
		13 & Under	14-15	16-17	18 & Over	(N)
Other Hallucinogens	a 1977	1.0	3.2	7.4	8.3	(4664)
	a 1979	1.7	4.0	9.2	7.2	(4777)
Cocaine	1977	2.3	4.3	4.2	4.3	(4653)
	1979	3.7	5.6	5.9	5.3	(4772)

a significant difference ($p < .001$) between age groupsb significant difference ($p < .001$) between years¹prescription²non-prescription

to age. The strength of the relationships varied (as measured by Cramer's V coefficient)*, with the use of cannabis (.33), alcohol (.32), and tobacco (.21) being more strongly associated with age than was use of the other drugs (i.e. coefficients ranged from .16 to .06). (Significantly more older students in both 1977 and 1979 used tobacco, alcohol, cannabis, barbiturates (both types), non-prescription stimulants and tranquillizers, and LSD and other hallucinogens; and prescription stimulants in 1979 only. However, significantly more younger students in both years used glue and solvents.

Among students 13 years old and younger, use of tobacco and cannabis increased significantly from 1977 to 1979. With students aged 14-15 years, use of cannabis increased and use of prescription tranquillizers decreased significantly. For those aged 16-17 years, use of cannabis and non-prescription stimulants increased in 1979. Older students (18 years and older) showed no significant increase in alcohol or other drug use. Of all drugs, cannabis use increased most frequently among all age levels, with lower and middle age levels being most affected. Phi coefficients for the preceding associations all fell below .12.

Alcohol and Other Drug Use in Various Grades

(The use of most drugs was related to grade levels as it was to age (see Table 7), and the correlation coefficients were similar to those for age. Use of all drugs but heroin, speed, prescription tranquillizers, and cocaine was closely related to grade level. Students in upper grades more often used tobacco, alcohol, cannabis, barbiturates (both types), non-prescription stimulants and tranquillizers, and LSD and other hallucinogens in both years, and prescription stimulants in 1979 only. Students in earlier grades more often used glue and solvents.

Students in Grade 7 used tobacco and cannabis in 1979 more than in 1977. Those in Grade 9 used cannabis and students in Grade 11 used tobacco, cannabis, and non-prescription stimulants in 1979 more than in 1977. There were no significant increases for Grade 13 students and there was a small non-significant decrease in alcohol use, contrary to the general upward trend for the age groups. Phi coefficients for these differences were low, falling below .13.

* Cramer's V is a slightly modified version of phi which is suitable for larger tables, ranging in value from 0 to +1. A large value of the coefficient signifies only that a high degree of association exists (Nie et al., 1975).

TABLE 7

Drug Use by Age(Percent using drugs at least
once in past 12 months)

Type of Drug	Year	Grade				Total (N)
		Seven	Nine	Eleven	Thirteen	
Tobacco	a 1977	b 14.1	33.3	b 41.1	36.7	(4650)
	a 1979	20.3	36.4	49.1	33.7	(4735)
Alcohol	a 1977	57.4	75.5	87.4	94.8	(4656)
	a 1979	57.0	75.4	89.9	92.1	(4734)
Cannabis	a 1977	b 5.6	b 23.2	b 39.4	42.4	(4656)
	a 1979	10.4	29.2	50.2	43.6	(4754)
Glue	a 1977	6.5	4.0	2.1	1.8	(4650)
	a 1979	7.4	5.0	2.1	1.5	(4737)
Other Solvents	a 1977	12.8	6.1	2.9	2.3	(4646)
	a 1979	10.1	7.6	3.6	1.7	(4734)
Barbiturates ¹	a 1977	6.9	14.9	20.3	16.5	(4641)
	a 1979	8.6	13.7	16.3	12.8	(4746)
Barbiturates ²	a 1977	2.6	7.0	9.2	5.2	(4658)
	a 1979	3.0	7.2	12.4	4.1	(4757)
Heroin	1977	1.7	2.7	1.4	1.8	(4641)
	1979	1.9	3.2	2.0	1.1	(4728)
Speed	1977	2.7	2.8	2.6	2.9	(4652)
	1979	2.5	4.1	4.5	3.1	(4762)
Stimulants ¹	1977	5.6	6.0	9.0	5.7	(4640)
	a 1979	4.0	6.2	8.8	4.2	(4735)
Stimulants ²	a 1977	3.2	9.0	b 9.8	6.4	(4648)
	a 1979	4.2	10.5	19.1	8.9	(4754)
Tranquillizers ¹	1977	6.3	8.9	10.5	9.3	(4649)
	1979	5.4	6.1	9.2	7.2	(4748)
Tranquillizers ²	a 1977	2.1	5.5	7.0	5.6	(4648)
	a 1979	2.6	6.3	8.8	5.8	(4756)
LSD	a 1977	2.5	5.8	10.7	6.5	(4654)
	a 1979	4.3	8.7	14.8	6.7	(4756)

TABLE 7 continued

Drug Use by Age
(Percent using drugs at least
once in past 12 months)

Type of Drug	Year	Grade				Total (N)
		Seven	Nine	Eleven	Thirteen	
Other Hallucinogens	a 1977	1.1	3.4	8.0	6.9	(4663)
	a 1979	2.0	4.0	10.7	5.5	(4771)
Cocaine	1977	2.7	4.0	3.9	4.2	(4652)
	1979	4.2	5.7	6.1	4.0	(4767)

a significant difference ($p < .001$) between grade levels

b significant difference ($p < .001$) between years

¹prescription

²non-prescription

Alcohol and Other Drug Use by Grade Average

As in the past, the use of drugs was more common among students with low grade averages. This was found in 1979 for all drugs except glue, other solvents, and prescription tranquillizers (see Table 8). Some of the differences are very great. For example, more than twice as many students with grades below 60 as with grades over 80 used stimulants (prescription), cocaine, tobacco, cannabis, heroin, and speed. More than four times as many used non-prescription tranquillizers and non-prescription stimulants. More than six times as many used non-prescription barbiturates and LSD and other hallucinogens. Grade average was more highly associated, as measured by Cramer's V coefficient, with use of cannabis (.21) and tobacco (.20) than use of any other drug (coefficients ranged from .18 to .06).

Alcohol and Other Drug Use by Parents' Occupation

For about half of the drugs, the frequency of use was related to fathers' occupational level (Table 9). The associations were relatively weak, all Cramer's V coefficients falling below the .10 level. These drugs in 1979 were: tobacco, cannabis, barbiturates (both types), speed, stimulants (non-prescription), and LSD. Several drugs were more commonly used by children of either professionals or "other" (i.e. no father, unemployed, father is a student), specifically: tobacco, cannabis, barbiturates (both types), speed, non-prescription stimulants, and LSD.

There were far fewer differences for mothers' occupation (Table 10). Differences existed only for cannabis, heroin, and non-prescription tranquillizers, and again the Cramer's V coefficients fell below the .10 level. For cannabis, use was similar in most occupational classes (self-employed, professional, clerical, and other, i.e. unemployed, no mother, students) but lower among children of housewives and mothers working in trade or service jobs. For heroin, use was the lowest among children of housewives, professionals, clerical, and trade/service workers and higher among "other" and self-employed. There were fewer (3.3%) tranquillizer users among children of trade or service workers and far more (12.6%) among children listing their mother's occupation as "other."

TABLE 8

Drug Use by Grade Average(Percent using drugs at least
once in past 12 months)

Type of Drug	Grade Average (In Percent)				(N)
	80-100	67-79	60-66	Below 60	
* Tobacco	20.6	32.1	44.2	52.6	(4733)
* Alcohol	71.5	76.9	79.6	81.6	(4732)
* Cannabis	17.9	28.6	41.1	53.2	(4747)
Glue	3.3	4.0	4.6	7.4	(4734)
Other Solvents	4.5	6.4	6.6	8.2	(4728)
* Barbiturates ¹	8.8	13.2	14.8	13.5	(4741)
* Barbiturates ²	2.8	5.6	8.6	17.7	(4754)
* Heroin	1.9	1.9	2.1	6.2	(4726)
* Speed	2.5	2.9	4.0	9.6	(4758)
* Stimulants ¹	4.2	5.5	6.4	10.6	(4733)
* Stimulants ²	4.8	9.6	13.1	23.3	(4750)
Tranquillizers ¹	6.7	6.1	7.7	9.0	(4744)
* Tranquillizers ²	3.7	5.3	6.1	14.8	(4752)
* LSD	3.5	6.6	11.9	22.9	(4752)
* Other Hallucinogens	2.3	4.0	7.4	13.7	(4768)
* Cocaine	3.1	4.7	5.8	11.0	(4764)

* significant difference ($p < .001$) between grade averages¹ prescription² non-prescription

TABLE 9

Drug Use by Father's Occupation(Percent using drugs at least
once in past 12 months)

Type of Drug	Father's Occupation					Total (N)
	Self- Employed	Professional	Clerical	Trades/ Service	Other	
* Tobacco	32.3	34.8	31.6	34.2	43.2	(4701)
Alcohol	75.4	80.5	77.0	76.4	75.2	(4703)
* Cannabis	25.5	36.7	31.3	30.7	36.1	(4721)
Glue	4.0	4.8	3.8	4.0	5.5	(4706)
Other Solvents	5.7	5.9	4.5	6.4	9.3	(4701)
* Barbiturates ¹	10.4	16.7	12.7	12.1	11.8	(4713)
* Barbiturates ²	4.3	7.9	4.9	6.6	11.0	(4724)
Heroin	1.6	1.9	2.0	2.2	4.3	(4697)
* Speed	2.8	4.5	2.2	3.1	6.2	(4731)
Stimulants ¹	5.3	7.2	4.5	5.9	5.3	(4703)
* Stimulants ²	7.6	13.3	7.6	10.2	14.3	(4721)
Tranquillizers ¹	8.0	6.8	7.8	6.3	6.7	(4716)
Tranquillizers ²	4.6	6.5	4.5	5.8	8.4	(4724)
* LSD	5.1	8.7	7.2	9.3	12.9	(4723)
Other Hallucinogens	3.5	6.3	4.9	5.1	7.0	(4737)
Cocaine	3.7	5.5	3.8	5.1	8.3	(4733)

* significant difference ($p < .001$) between occupational categories¹prescription²non-prescription

TABLE 10

Drug Use by Mother's Occupation(Percent using drugs at least
once in past 12 months)

Type of Drug	Mother's Occupation						Total
	Housewife	Self-Employed	Professional	Clerical	Trades/Service	Other	(N)
Tobacco	32.6	35.5	35.8	37.1	33.5	44.4	(4711)
Alcohol	75.1	79.3	80.1	79.2	76.9	75.5	(4716)
* Cannabis	29.4	35.6	35.5	35.8	27.4	37.6	(4732)
Glue	3.9	4.0	4.8	4.4	4.0	7.9	(4716)
Other Solvents	5.5	11.0	6.0	6.1	6.5	10.6	(4712)
Barbiturates ¹	12.5	14.9	16.2	12.4	11.0	14.3	(4728)
Barbiturates ¹	6.1	8.0	6.6	7.1	7.0	11.1	(4736)
* Heroin	1.7	3.5	2.2	2.0	2.5	6.5	(4709)
Speed	3.4	4.0	2.4	4.2	2.8	7.0	(4741)
Stimulants ¹	4.9	9.8	7.4	5.8	6.0	8.0	(4715)
Stimulants ²	9.6	10.3	11.4	11.7	9.6	16.4	(4733)
Tranquillizers ¹	6.8	6.9	8.7	7.5	4.0	8.0	(4727)
* Tranquillizers ²	5.2	5.1	6.6	7.4	3.3	12.6	(4734)
LSD	7.9	7.4	8.5	9.5	8.3	14.6	(4733)
Other Hallucinogens	4.7	4.6	5.8	5.9	5.0	9.2	(4750)
Cocaine	5.0	5.7	5.6	4.6	4.5	10.6	(4744)

* significant difference ($p < .001$) between occupational categories¹prescription²non-prescription

Alcohol and Other Drug Use by Region

There were strong regional variations in the frequency of users of tobacco, cannabis, non-prescription barbiturates, non-prescription stimulants; and LSD and other hallucinogens (Table 11). The Cramer's V coefficients ranged from .13 to .07. There was a larger proportion of users of tobacco and cannabis in the Eastern region and Ottawa Valley and a smaller proportion in the Midwestern region. Users of non-prescription barbiturates were most common in the Eastern region and least in the Midwestern region. Non-prescription stimulant use was higher in the Ottawa Valley, Niagara, and Eastern regions and lower elsewhere. LSD was most commonly used in the Eastern region and least in the Midwestern region. Use of other hallucinogens was highest in the Ottawa Valley and Western regions and lowest in the Midwestern region. In general the Eastern part of the province has a higher frequency of users of various drugs and the Midwestern part a lower frequency of users in 1979, whereas in 1977, use was most common in the North.

Frequency of Use of Alcohol and Other Drugs by Users

Users of most drugs reported infrequent use within the previous 12 months, except for users of tobacco, alcohol, and cannabis. The results for frequency of use are numerous but, in the main, results are as follows:

1. Alcohol was consumed at least once a week or more often by one-fifth (19.7%) of all students, representing one-quarter (25.7%) of all alcohol users (Table 12).

Although there was some inconsistency in student responses to different questions about alcohol use, the differences were small: for example, the percentage of students who reported not consuming alcohol within the past year, as measured by different questions, ranged from 23.1% to 25.8%.

More than half (53.2%) of all students consumed wine at meals with their family at least once in the past year. The relationship of wine drinking with family and wine consumption in general was examined (Table 13). As the frequency of wine consumption at family meals increased, the quantity of wine consumed on the average at any one time

TABLE 11

Drug Use by Region
(Percent using drugs at least
once in past 12 months

Type of Drug	Region							Total (N)
	Northern	Western	Mid-western	Niagara	Central	Eastern	Ottawa Valley	
* Tobacco	38.1	33.8	29.6	36.2	31.6	42.0	43.5	(4745)
Alcohol	74.9	79.2	73.8	78.1	76.1	78.0	83.5	(4744)
* Cannabis	35.7	30.4	22.1	36.9	27.6	45.5	40.1	(4763)
Glue	4.2	6.3	4.8	3.3	3.8	5.2	4.0	(4749)
Other Solvents	6.9	5.6	5.9	5.8	6.8	4.9	5.6	(4743)
Barbiturates ¹	12.2	12.9	12.8	15.3	10.9	17.5	15.1	(4757)
* Barbiturates ²	7.6	6.6	3.0	7.4	6.3	11.8	8.0	(4769)
Heroin	2.4	3.5	1.5	1.9	1.9	3.9	1.5	(4740)
Speed	4.0	4.6	3.2	2.3	3.2	5.2	4.3	(4774)
Stimulants ¹	5.3	5.8	5.7	6.9	5.0	8.9	7.1	(4747)
* Stimulants ²	8.4	6.7	8.6	16.6	8.9	16.2	18.8	(4766)
Tranquillizers ¹	7.2	7.6	8.4	7.2	6.2	7.8	4.3	(4759)
Tranquillizers ²	7.6	5.6	3.6	6.1	5.4	9.1	5.2	(4768)
* LSD	10.4	9.0	4.9	10.0	8.1	12.7	6.5	(4768)
* Other Hallucinogens	5.7	8.2	2.3	4.5	4.5	6.8	8.3	(4784)
Cocaine	6.2	3.9	3.2	4.4	5.8	6.1	4.9	(4780)

* significant difference ($p < .001$) between regions

¹prescription

²non-prescription

TABLE 12

Frequency of Alcohol Use Within Past 12 Months

Frequency of Alcohol Use	% of Sample (N=4744)	% of Users (N=3649)
None	23.1	-
Special occasions	29.9	38.9
Once a month or less	14.4	18.7
2 times a month	12.9	16.8
Once a week	9.6	12.5
2-3 times a week	7.5	9.8
4-5 times a week	1.7	2.2
Almost daily	0.9	1.2
Total	100.0	100.1

TABLE 13

***Frequency of Wine Consumption At Family Meals
and Average Alcohol Consumption in General***

Frequency of Wine Consumption At Family Meals	Average Consumption of Alcohol At Any One Time								
	Wine			Beer			Liquor		
	<6 Glasses	6+ Glasses	Total	<7 Bottles	7+ Bottles	Total	<5 Drinks	5+ Drinks	Total
None	97.6%	2.4%	100.0%	94.7%	5.3%	100.0%	92.3%	7.8%	100.1%
4-5 times a week or less often	94.6%	5.4%	100.0%	91.5%	8.5%	100.0%	88.5%	11.5%	100.0%
Almost daily	79.6%	20.5%	100.1%	79.5%	20.5%	100.0%	80.8%	19.3%	100.1%

< signifies less than
+ signifies more than

increased; 2.4% of students who did not drink wine at family meals usually consumed six or more glasses of wine at any one time compared with 20.5% of students who used wine at family meals almost daily. Similarly, students who were usually daily drinkers of wine at family meals were more likely to consume large quantities of either beer (20.5%) or liquor (19.3%) at any one time than were those who did not drink wine with their family at meals (5.3% and 7.8%, respectively).

One quarter of all students (24.5%) reported being "tight" from drinking alcohol at least once in the previous month, representing 32.8% of all drinkers and 41.5% of monthly drinkers (i.e. students who had consumed alcohol in the past month).

About 18.4% of all students reported being "drunk" from alcohol use at least once in the previous month, representing 24.9% of all drinkers and 32.1% of monthly drinkers.

About 27.0% of all students reported consuming at least five drinks on the same occasion within the previous month, representing 36.2% of all drinkers and 45.5% of monthly drinkers.

2. About 12.3% of all students smoked six or more cigarettes a day, representing 35.1% of tobacco users (Table 14).

3. The majority of students who had sniffed glue (71.4%) or other solvents (71.3%), and approximately two-thirds of heroin users (65.4%), speed users (67.8%), and cocaine users (66.3%) reported using the drug only one or two times within the past year. Heavy use of drugs (i.e. 10 or more times in the past year) was most frequent among users of heroin (15.8%) and speed (14.6%) and less frequent among glue (13.5%), cocaine (10.2%), and solvent (9.1%) users (Table 15).

Non-prescribed use of barbiturates, stimulants, and tranquillizers was slightly more frequent (i.e. 59.1%, 52.6%, and 64.6% of users respectively, using the drug only one or two times) than prescribed use of barbiturates, stimulants, and tranquillizers (66.4%, 62.9%, and 67.2% of users respectively, using the drug only one or two times). Similarly,

TABLE 14

Frequency of Tobacco Use Within Past 12 Months

Number of Cigarettes	% of Sample (N=4745)	% of Users (N=1647)
None	65.3	-
Less than 1 a day	10.9	31.4
1-2 a day	4.8	13.8
3-5 a day	6.8	19.7
6-10 a day	6.2	17.7
11-15 a day	3.0	8.5
16-20 a day	1.9	5.5
20 or more a day	1.2	3.4
Total	100.0	100.0

heavy use (i.e. 10 or more times) was common among users of non-prescribed barbiturates (16.1%) and stimulants (17.9%) than among users of prescribed barbiturates (10.5%) and stimulants (15.1%). Heavy use was similar among users of both types of tranquillizers (11.8% and 12.0%).

Use of LSD and other hallucinogens was more frequent than that of most types of drugs, with only 51.3% and 57.1% of users reporting use of one or two times, and the remainder of users reporting more frequent use. One-fifth (19.9%) of LSD users and 16.5% of hallucinogen users reported heavy use (i.e. 10 or more times).

About 15.9% of all students used cannabis 10 or more times, representing 50.2% of cannabis users.

Grade of First Use of Alcohol and Selected Drugs

The grade of first use of alcohol, tobacco, cannabis, and non-prescription tranquillizers did not differ in 1979 and 1977. The mean grade level for first use of tobacco and alcohol was Grade 6. For cannabis and non-prescribed tranquillizers it was Grade 7-8. Age of first use for other drugs was not determined.

TABLE 15

Frequency of Use of Drugs Within Past 12 Months

Type of Drug	% of Sample							% of Users							
	None	1-2 Times	3-5 Times	6-9 Times	10-19 Times	20-39 Times	40+ Times	(N)	1-2 Times	3-5 Times	6-9 Times	10-19 Times	20-39 Times	40+ Times	(N)
Cannabis	68.3	7.9	4.7	3.2	4.4	3.3	8.2	(4763)	25.0	14.8	10.1	13.9	10.5	25.8	(1510)
Glue	95.7	3.1	0.5	0.2	0.3	0.1	0.2	(4749)	71.4	10.7	4.4	6.8	1.9	4.8	(206)
Other Solvents	93.8	4.4	0.9	0.3	0.2	0.1	0.2	(4743)	71.3	14.2	5.4	3.7	2.0	3.4	(296)
Barbiturates ¹	87.2	8.5	2.0	0.9	0.6	0.2	0.5	(4757)	66.4	15.8	7.2	4.4	1.8	4.3	(608)
Barbiturates ²	93.2	4.0	1.1	0.6	0.5	0.2	0.4	(4769)	59.1	15.8	9.0	7.4	2.5	6.2	(323)
Heroin	97.7	1.5	0.2	0.2	0.1	0.1	0.1	(4740)	65.4	10.3	8.4	5.6	3.7	6.5	(107)
Speed	96.4	2.4	0.5	0.1	0.2	0.2	0.1	(4774)	67.8	14.6	2.9	4.7	5.8	4.1	(171)
Stimulants ¹	94.2	3.7	0.9	0.4	0.3	0.2	0.4	(4747)	62.9	14.7	7.2	4.7	3.2	7.2	(278)
Stimulants ²	89.4	5.6	1.8	1.3	1.0	0.4	0.5	(4766)	52.6	16.9	12.7	9.3	3.4	5.2	(504)
Tranquillizers ¹	93.1	4.6	1.1	0.4	0.4	0.2	0.3	(4759)	67.2	15.6	5.2	5.2	2.8	4.0	(326)
Tranquillizers ²	94.1	3.8	1.0	0.4	0.4	0.1	0.2	(4768)	64.6	17.1	6.4	6.1	1.8	3.9	(280)
LSD	91.4	4.4	1.7	0.8	0.8	0.5	0.4	(4768)	51.3	20.0	8.8	9.0	5.8	5.1	(411)
Other Hallucinogens	94.7	3.0	0.9	0.5	0.5	0.2	0.1	(4784)	57.1	16.9	9.4	10.2	3.9	2.4	(254)
Cocaine	94.9	3.4	0.8	0.4	0.2	0.1	0.2	(4780)	66.3	15.9	7.7	4.5	2.4	3.3	(246)

¹prescription²non-prescription

DISCUSSION

The main findings of the 1979 study were as follows:

1. The questions on demographic characteristics and drug use were highly reliable and those on the frequency of drug use were slightly less reliable.
2. The sample obtained in 1979 contained slightly more males and students from the Northern, Western, and Midwestern regions than in 1977 although the sampling for sex represents the current student population.
3. Alcohol, tobacco, and cannabis were the drugs most commonly used by students in 1979; 76.9%, 34.7%, 31.7% of students respectively used these drugs at least once in the previous year.
4. There were more male than female users of alcohol, cannabis, glue, non-prescription barbiturates, speed, non-prescription stimulants, LSD, other hallucinogens, and cocaine. There were more female than male users of tobacco.
5. Significantly more older students and those in the upper grades than younger students used tobacco, alcohol, cannabis, barbiturates (both types), stimulants (both types), non-prescription tranquillizers, and LSD and other hallucinogens. More younger students and those in the lower grades used glue and other solvents. The mean grade level for the first use of tobacco and alcohol was Grade 6 and for cannabis, Grades 7 and 8.
6. Far more students with lower grade averages used all drugs except glue, other solvents, and prescription tranquillizers.

7. Drugs such as tobacco, cannabis, barbiturates, speed, non-prescription stimulants, and LSD were more often used by students who listed their father as in a professional or other (i.e. no father, unemployed, father is a student) occupational category.
8. Cannabis use appeared to be less frequent among children of mothers who were housewives or working in trade or service jobs. Heroin use was highest among children whose mothers were self-employed, or in other (i.e. no mother, unemployed, student) occupational categories. Non-prescribed tranquillizer use was most common among children whose mothers were listed as "other" (i.e. no mother, unemployed, student).
9. In general, the Eastern part of the province had larger proportions of illicit drug users (e.g. cannabis, non-prescription barbiturates and stimulants, and LSD and other hallucinogens) than did the Western, Central, and Northern regions.
10. Most (more than 50%) users of illicit drugs (e.g. glue, other solvents, heroin, speed, cocaine, barbiturates, tranquillizers and stimulants, and LSD and other hallucinogens) reported infrequent use, i.e. one or two times in the year. However, cannabis was used 10 or more times by about half of the users.
11. Alcohol was used once a week or more often by about one-fifth of all students, and by about one-quarter of those who drink. About half of all students consumed wine with their families. About a quarter of all students reported being "tight" in the last month, 18.4% having being "drunk," and 27% having consumed at least five drinks on a single occasion.

The major changes since the study in 1977 were as follows:

1. The use of four drugs: tobacco, cannabis, non-prescription stimulants, and LSD increased. All other types of drug use remained essentially the same. Cannabis use increased among both males and females. Tobacco use increased only among females. Non-prescription stimulant use and LSD use increased only among males.

Among younger students (13 and under), use of tobacco and cannabis increased. With those aged 14-15, cannabis use increased and prescription tranquillizer use decreased. Among 16-17 year olds, cannabis and non-prescription stimulant use increased. Older students (18 and older) showed no increases at all. Cannabis increased at all age levels except the oldest.

2. Use of alcohol and most illicit drugs was more common in the Eastern part of the province, whereas in 1977 use was most common in the North. Some differences may be attributed to the changes in the regional contributions to the sample, particularly in the Midwestern region.

In general, the results of this study are similar to those found in earlier ones. Most types of drug use are more common among males and older students but most illicit drug use, except for cannabis use, is infrequent and probably of an experimental nature. Drug use is closely related to attainment of grades in school, with the less successful students showing the most frequent use.

There are several drugs which are likely to create substantial problems for many students, of which cannabis, tobacco, and alcohol are the most commonly used. Cannabis is increasing in frequency of use among both sexes and at all grade levels except the highest. It is the most frequently used illicit drug and it shows no signs of decreasing popularity in the high school population. Tobacco use increased since 1977 but only among females and younger students. Alcohol is, of course, important because of the large number of students who drink and drink heavily. About a quarter are getting tight and consuming at least five drinks on an occasion once a month. However, there was no overall increase in numbers of drinkers as there was in users of cannabis and tobacco.

This study has indicated a number of changes in drug use between 1977 and 1979. Caution should be used in interpreting these changes as "trends." What we have are two-year changes and not long-term developments in the Ontario high school population. Some of these changes may become long-term trends but some may not. Plans are being made to continue studies of this population at two-year intervals so that trends can be determined.

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